



484 ELLIS STREET, MOUNTAIN VIEW, CALIFORNIA 94042 14151962-5011 CABLE FAIRSEMCO MOUNTAIN VIEW, CALIF

SFUND RECORDS CTR  
2807-91283

SFUND RECORDS CTR  
88171461

July 12, 1979

Gary K. Smith  
Fire Marshal  
Mountain View Fire Department  
997 Villa Street  
Mountain View, California 94040

Dear Chief Smith,

Reference is made to your letter of June 27, 1979 and our meeting of July 10, 1979, regarding renovations to existing facilities at the Fairchild Complex located within your jurisdiction. The writer has attempted to provide the information that your department has requested in the following paragraphs.

1. FIRE SEPARATIONS: Fairchild agrees that every effort should be made to ensure that fire potential within these work spaces is minimized. This existing facility makes conformance with fire resistive construction extremely difficult in view of the number of ducts, pipes, conduits and related materials that have been installed above the drop ceiling of the building. This subject will be addressed during our scheduled meeting of 17 July 1979.
2. AUTOMATIC SPRINKLER PROTECTION: Fire Sprinkler coverage shall be installed as per NFPA Pamphlet 13. Laminar flow ceiling installations will be provided with underside protection. Exhaust ducting to fume hoods will be of PVS "Snria-Loc" construction that meets code. (A copy of the exhaust duct information is attached to this report.)
3. HYDROGEN DETECTION SYSTEM: The hydrogen detection equipment will be installed in all locations where hydrogen piping/equipment is installed. Every effort will be made to keep hydrogen piping out of concealed spaces/above corridors. The location and design of the hydrogen shut off valves (located in the hallway) is a standard installation for Fairchild. It is requested that approval be granted as drawn so that standardization can be maintained at all locations.

NOTE: The hydrogen detection system alarms at 10% and Secondly at 50% of the LEL of hydrogen. Our standard operating procedure is to evacuate the work spaces whenever the alarm occurs and to call the fire department for immediate response. Supervisorial personnel are trained to deactivate equipment when the alarm sounds. Automatic shut down of equipment would create serious problems with fragile (glass) components within the furnaces and is not recommended. Members of the Fairchild Fire Brigade have also received instruction on shut down procedures for the Hydrogen system.

3. HYDROGEN DETECTION SYSTEM: continued,

Fairchild receives its hydrogen supply from Air Products Inc., located adjacent to our facilities on Whisman Road. According to Air Products Management, all shut off valves on all of their underground piping are manual.

4. FIRE EXTINGUISHERS: First aid fire fighting appliances will be installed throughout this work space (at 30' intervals) as per our standard procedure.
5. FLOOR PLAN: A complete floor plan of Building Two (2) will be provided to your department so that exit facilities can be evaluated.

The area labeled "Main Corridor" will be redesigned to provide a complete corridor throughout the fabrication area.

The fire rating of the corridor will be maintained; doors/openings into and through this corridor will be one (1) hour fire assembly approved.

The design of this facility negates alternative methods of transporting solvents/chemicals other than through the hallways of the building. Chem Mix personnel have been properly trained in chemical handling, firefighting and clean up procedures and the transportation and handling of chemicals will be in accordance with recognized safety practices.

6. FLAMMABLE LIQUID STORAGE/HANDLING: The flammable liquids to be stored/used in this work space are listed below. These solvents are Class I liquids and will be stored/used from approved stainless steel safety containers. Waste solvents are recovered in approved steel safety containers for removal from the building.

Isopropyl Alcohol	2 Gallons Per Day
Methyl Alcohol	0-1 Gallons Per Day
Acetone	1-2 Gallons Per Day
Xylene	15 Gallons Per Day
Total Daily Use	20 Gallons per day

The gases used in the nitride reactors are listed below:

Silane (30% in Nitrogen)	26 liters per day
Amonia (100%)	720 liters per day
Nitrogen	No hazard

Gases that will be used in other parts of the fabrication space include:

Hydrogen	120 liters per minute
Silicon Tetrachloride	2.5 liters per minute
Hydrogen Chloride	12 liters per minute
Phosphine (10 ppm in H <sub>2</sub> )	.15 liters per min.

The storage cabinets/containers will be properly labeled. All process gas piping will be identified at 10' intervals with the name of the gas and direction of flow as standard operating procedure. Valves/fittings will also be identified.

6. continued.

The Hydrofluoric Acid Recovery Appliances are utilized to capture fluorides so that they can be removed from the building. The appliances are properly labeled and designed to prevent them from siphoning flammable solvents.

7. ELECTRICAL EQUIPMENT FOR HAZARDOUS LOCATIONS: The electrical wire molds indicated in the plans do not actually extend into the chemical cabinets.

8. CHEMICAL CABINETS: The chemical cabinets constructed for this fabrication space will meet one (1) hour fire construction and will be provided with mechanical ventilation, liquid tight floor sills, sprinkler protection and rated doors.

NOTE: As per our conversation of July 12, 1979, electrical wiring will meet Class I, Division II requirements. Hazardous liquids, vapors or gases will normally be confined within closed containers and mechanical ventilation has been provided to prevent hazardous concentrations of gases from accumulating.

9. VENTILATION SYSTEMS: The exhaust duct systems proposed for this renovation meet the requirements stipulated in the Uniform Mechanical Code. A copy of the Spira-loc data sheets is attached to this letter for your convenience.

NOTE: Automatic shut down of the exhaust blower system upon activation of the fire sprinkler system/smoke detection is NOT recommended for the following reasons:

- a. If the exhaust ducting is protected with fire sprinklers, the sprinklers down stream of the fire as well as upstream will fuse when the air flow is shut off. This situation creates a weight problem caused by the accumulation of the sprinkler water in the ducts. If it is estimated that a standard sprinkler head will provide 25 gpm, this would cause approximately 200 pounds of water weight to accumulate in the exhaust system for each minute of activation, for each head that fuses. Drains attached to ducting will provide some relief, but it is realistic to believe that this action will cause the collapse of the exhaust ducting and serious damage to the building/contents. The roof(s) of buildings are not designed to provide the support necessary for this type of weight buildup in the duct system.
- b. The exhaust system provides the necessary ventilation to ensure that hazardous concentrations of gases will not accumulate in the work spaces. Maintaining exhaust from the building helps ensure the safety of personnel evacuating from the work spaces and allows safe entry of the building by fire fighting personnel.
- c. The majority of buildings at our complex have fixed windows, making cross ventilation almost impossible.
- d. Shut down of the exhaust system would allow products of combustion to remain in the work spaces and would cause serious contamination of product and damage to equipment.
- e. The majority of fabrication work spaces do not recirculate air. They are provided with 100% fresh air make up so that products

9. VENTILATION SYSTEMS, continued

of combustion will not be recirculated through the workspaces or adjoining areas.

10. SCRUBBER FAILURE: An air vane will be provided in the exhaust system to provide notification of exhaust failure. Emergency power is available to provide 1/2 power if normal electrical service is broken/disrupted.

11. BOILER ROOM SEPARATION: The boiler room will be provided with a complete one (1) hour separation and the damper in the combustion air ducting will be removed.

12. INTERIOR FINISHES: All interior finishes will meet Class III flame spread.

13. NO SMOKING REQUIREMENT: The work spaces will be posted as a "NO SMOKING" area.

If additional information is desired, please contact the writer at your convenience.



Lee Neal  
Manager, Corporate Safety

cc: Bob Bostic  
Jim McCallister  
Tom Hopkinson  
Ken Rohner  
Ben Patrino